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February 7, 2005

Marlene H. Dortch, Secretary
Federal Communications Commission
Office of the Secretary
445 12st Street, SW
Washington, D.C. 20554

Re: MM Docket No. 99-325 (In the Matter of Digital Audio Broadcasting Systems and Their Impact on Terrestrial Audio Broadcast Services)

Dear Ms. Dortch:

I am submitting this letter pursuant to Section 1.1206(b) of the Commission's rules on behalf of the Recording Industry Association of America, Inc. ("*RIAA*") in response to the October 25, 2004 *ex parte* filing of the Electronic Frontier Foundation ("*EFF*") ("EFF Filing") in this docket. In that *ex parte,* EFF argues that DAB is no different than current analog FM radio and advances three claims: (a) that adoption of content protection rules will override copyright policy, (b) that DAB "audio quality is, at best, comparable to analog FM," and (c) that imposing content protection rules on DAB would adversely affect the service. None of the claims has any merit.

1. Inclusion of Content Protection Requirements in the Commission's DAB Rules Is Not Precluded by the Audio Home Recording Act or the Decision in *Sony Corp. of Am. v. Universal City Studios, Inc.*

In asserting that RIAA is asking the Commission to override copyright policy, EFF re-argues its early claims that (1) the Audio Home Recording Act ("AHRA") immunizes the sale of DAB recording devices and the recording of DAB transmissions by consumers and (2) the decision in *Sony Corp. of Am. v. Universal City Studios, Inc.*[1] permits listeners to copy sound recordings without violating the Copyright Act. RIAA addressed and refuted both these claims in its Comments and Reply Comments[2] and will not reiterate those lengthy presentations here. Suffice it to say that, while the AHRA provides a limited degree of immunity to manufacturers and users of certain specific devices that can be used to copy copyrighted sound recordings, most devices that can and will be used to receive and record DAB transmissions are probably not covered by the

[1] 464 U.S. 417 (1984).

[2] *See* Comments of the Recording Industry Association of America, Inc., in MM Docket No. 99-325 (June 16, 2004) ("RIAA Comments") at 68-75; Reply Comments of the Recording Industry Association of America, Inc., in MM Docket No. 99-325 (Aug. 2, 2004) ("RIAA Reply Comments") at 25-37.

AHRA; and even if such a device were covered by the AHRA, the AHRA probably would not immunize the user's infringing conduct.[3] The AHRA only applies to certain devices "the digital recording function of which is designed or marketed for the primary purpose of, and that is capable of, making a digital audio copied recording for private use,"[4] and would not apply to a DAB receiver that primarily recorded nonmusical material.[5] Further, the one relevant case suggests that the AHRA does not apply to devices that record to a hard drive.[6] Contrary to EFF's claims, the AHRA does not preclude the Commission's inclusion of content protection requirements in its DAB rules.

Similarly, the *Sony* decision does not preclude the adoption of content protection requirements for DAB designed to prevent the automated creation of libraries of sound recordings. As RIAA noted in its Reply Comments, the *Sony* decision only authorized certain recording for time shifting and then of an entire broadcast program. It did not hold that recording for the purpose of creating a library constituted a fair use.[7] Moreover, nothing in that decision abrogated the statutory criteria for determining whether the copying of broadcast material is a fair use. As RIAA has shown, the automated copying of DAB transmissions of sound recordings to create a musical library fails every element of the statutory fair use test.[8] Indeed, one federal court has already determined that library building of copyrighted sound recordings is not sanctioned by *Sony*.[9] Finally, RIAA does not oppose the manual recording of DAB broadcasts – something that EFF conveniently ignores.

In short, the use of a DAB receiver/recorder to build a library of copyrighted sound recordings – the recording industry's principal concern here – is not protected against a claim of infringement by the fair use defense in Section 107 of the Copyright Act, and Commission's inclusion of a content protection requirement as part of its DAB rules is fully consistent with the Copyright Act.

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[3] *See* RIAA Comments at 71-73; RIAA Reply Comments at 34-37. As RIAA noted in its Comments, the AHRA only applies to a limited class of devices, which are required to use the Serial Copy Management System or an equivalent system approved by the Secretary of Commerce and comply with other requirements. It does not reach every recording methodology or purport to regulate, or preclude the regulation of, the broadcast of recorded works. *See* RIAA Comments at 69-71.

[4] 17 U.S.C. § 1001(3); *see also* RIAA Reply Comments at 36.

[5] *See* RIAA Comments at 71-73.

[6] *See RIAA v. Diamond Multimedia Sys. Inc.*, 180 F.3d 1072 (9th Cir. 1999).

[7] *See* RIAA Comments at 26-34.

[8] *Id.* at 29-34.

[9] *In re Aimster Copyright Litig.*, 334 F.3d 643, 647 (7th Cir. 2003); *see also* RIAA Reply Comments at 28-29.

2. DAB Quality Is Superior to FM Broadcast Quality

EFF's claim that DAB "offers audio quality that is, *at best*, comparable to analog FM"[10] ignores the Commission's own findings on this issue and those of the National Radio Standards Committee ("NRSC"), the broadcast industry's technical standards-setting body. The Commission has held that:

> "We also stated that the dramatic improvement in digital audio quality would outweigh any limits on analog operations."[11]
>
> "iBiquity's IBOC DAB technology provides for enhanced sound fidelity, improved reception."[12]
>
> "IBOC is a method of transmitting *near-CD quality* audio signals . . . with *new* data services such as station, song and artist information."[13]
>
> "This [IBOC] technology allows broadcasters to use their current radio spectrum to transmit AM and FM analog signals simultaneously with *new higher quality digital signals*."[14]
>
> "These digital signals eliminate the static, hiss, pops, and fades associated with the current analog radio system."[15]
>
> "The [NRSC] tests . . . showed that both AM and FM IBOC systems *offer enhanced audio fidelity* and increased robustness to interference and other signal impairments."[16]
>
> "We stated that *audio fidelity and robustness will greatly improve* when radio stations move to digital operations."[17]

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[10] EFF Filing at 7 (emphasis added).
[11] *Further Notice of Proposed Rulemaking and Notice of Inquiry in Digital Audio Broadcasting Systems And Their Impact on the Terrestrial Radio Broadcast Service* in MM Docket No. 99-325, 19 FCC Rcd. 7505 at ¶ 1 (2004) (emphasis added).
[12] *Id.* at ¶ 2.
[13] *Id.* (emphasis added).
[14] *Id.* (emphasis added).
[15] *Id.*
[16] *Id.* at ¶ 7 (emphasis added).
[17] *Id.* (emphasis added).

Similarly, the NRSC, whose members are "engineers, scientists, or technicians with in-depth knowledge of the subject being studied"[18] and whose purpose is to study and make recommendations for technical standards that relate to radio broadcasting and the reception of radio broadcast signals,"[19] has concluded that DAB is superior to analog FM radio. Thus, in a June 30, 2004 memorandum from the NRSC's Evaluation Working Group ("EWG") to the DAB Subcommittee, the EWG reported on its "evaluation of test results recently submitted to the NRSC by iBiquity Digital Corporation and Sheffield Audio Consulting pertaining to the performance of iBiquity's third generation ('Gen 3') AM and FM in-band/on-channel ("IBOC") digital radio system hardware."[20] The evaluation was conducted for two reasons:

> i) to determine the unimpaired (i.e., no interfering signals and no multipath or other forms of signal impairment) audio quality of iBiquity's AM and FM IBOC Gen 3 systems which utilize "HDC" audio coding, and ii) to confirm that the Gen 3 hardware performs similarly to the previous ("Gen 1") version of the systems evaluated by the NRSC in 2001 and 2002. When assessing unimpaired audio quality, the EWG has relied upon performance goals established during the Gen 1 evaluation used to determine if the iBiquity HD Radio system represents a 'significant improvement over existing analog services,' as directed by the Subcommittee's Goals and Objectives statement.[21]

In contrast to EFF's test, the NRSC's evaluation of DAB was subject to rigorous oversight and accepted testing procedures. The EWG Memorandum noted that:

> Data contained in the Gen 3 test data report documents were collected by iBiquity in the presence of an NRSC observer (Tom Keller, T. Keller Corporation), a broadcast consulting engineer familiar with both the NRSC's IBOC test procedures as well as the underlying technologies and measurement techniques. The NRSC observer ensured that the tests were conducted according to the NRSC's procedures and that the data recorded were in fact the data obtained. Subjective evaluations performed on portions of this data were conducted by iBiquity under the supervision of

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[18] *Id.*

[19] National Radio Systems Committee, http://www.nrscstandards.org/ (last visited Jan. 5, 2005).

[20] NRSC Memorandum Re: Evaluation of iBiquity AM and FM IBOC "Gen 3" Hardware" at 1 (June 30, 2004), available at http://www.nrscstandards.org/DAB/Gen%203%20reports/Gen%203%20report.pdf ("EWG Memorandum").

[21] *Id.* at 2 (internal footnotes omitted).

> Dr. Ellyn Sheffield and are documented in the test data reports, as well. All of these tests were conducted using methods and procedures consistent with earlier (i.e. "Gen 1" and "Gen 2") system tests evaluation by the NRSC.[22]

The NRSC tests pitted DAB transmissions in the IBOC format against two types of audio benchmarks: (1) compact disc ("CD") source audio and (2) analog audio recorded off of the four FM analog receivers used by the NRSC for IBOC compatibility testing.[23] The tests compared "the unimpaired IBOC audio cuts against the benchmarks" and made it possible to determine "if the IBOC is a significant improvement over existing analog services (comparison against the analog audio cuts) and also to see how the IBOC compares against the audio quality of a CD (for FM IBOC) or unimpaired FM (for AM IBOC)."[24]

The findings of the NRSC are, not surprisingly, consistent with the findings of the Commission:

> Findings – unimpaired digital audio quality – FM IBOC
>
> Under unimpaired signal conditions, and using critical audio material selected to stress these systems, subjective evaluation of the test results shows that the *audio quality of the iBiquity FM IBOC Gen 3 system is a significant improvement over the existing analog service. It is the equivalent to the audio quality of a CD, and is better than FM analog audio quality*. These results were consistent across all audio formats tested (classical, critical, rock, speech).[25]
>
> Conclusion
>
> We . . . conclude that the Gen 3 systems satisfy the original "Goals and Objectives" of the DAB Subcommittee by providing a digital signal with

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[22] *Id.* at 3.
[23] *Id.* at 3.
[24] *Id.* at 3 n.7.
[25] *Id.* at 3 (emphasis added). NRSC also conducted studies with impaired signal conditions and reached the same conclusions. *See,* EWG Memorandum at 5-6; NRSC, *DAB Subcommittee, Evaluation of the iBiquity Digital Corporation IBOC System, Report from the Evaluation Workig Group* at 27 (Nov. 29, 2001). This latter evaluation tested the initial Gen. 1 IBOC system, which was the benchmark against which the EWG Memorandum findings were based.

> *significantly improved audio quality over AM and FM analog systems* that presently exist in the United States.[26]

This rigorous analysis by qualified engineers and testers is clearly entitled to more credence than EFF's *ad hoc* test, as much as EFF has attempted to portray it as "empirically sound."

Finally, the broadcast industry is virtually unanimous in its view that DAB quality is superior to analog FM. For example:

> Clear Channel – "Digital radio is a transforming application and Clear Channel Radio is committed to passing on its benefits to listeners . . . The ability to deliver *radically improved, CD-quality radio programming* and reception, along with data and related services, is a powerful advantage for the radio industry and an important advance for listeners."[27]
>
> Cox Radio – "Digital radio represents the future of radio. With the technology now ready for broad based deployment, we are stepping up our efforts to provide digital radio to our listeners. Digital radio . . . *brings CD quality sound* to our listeners free of charge . . ."[28]
>
> Entercom Communications – "HD Radio technology is transforming today's AM and FM radio by transmitting digital audio and data alongside existing analog signals. The technology allows listeners with HD Radio receivers to *enjoy CD-quality sound on FM* and modern-day FM-sound quality on AM – all while virtually eliminating interference."[29]
>
> KUOW (FM) – "Digital radio, also known as HD Radio *provides a stronger, cleaner signal.*"[30]

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[26] *Id.* at 7 (emphasis added).
[27] *See* Statement of Kevin Lockhart, Senior Vice President of Technology Development (July 22, 2004), available at http://www.clearchannel.com/Radio/PressReleases/2004/20040722_CCR.pdf (last visited Jan. 4, 2005) (emphasis added).
[28] *See* Statement of Robert F. Neil, President and CEO, Cox Radio Press Release dated Aug. 9, 2004, available at http://coxradio.com/investors/news_080904.html (last visited Jan. 5, 2005) (emphasis added).
[29] *See* Entercom Communications Press Release dated Aug. 3, 2004, available at http://www.entercom.com/pages/pr_august204.html.
[30] *See* http://www.kuow.org/about_digitalradio.asp (last visited Jan. 4, 2005) (emphasis added).

> WAMU (FM) – "HD Radio is a groundbreaking new digital technology that produces the highest quality audio available, delivering crystal clear reception and offering CD quality sound."[31]
>
> WOSU-FM – HD Radio is "the most revolutionary advance in radio since 1919 . . . HD Radio technology is a method of transmitting audio and data, *offering upgraded audio quality* . . ."[32]

These consistent findings by the Commission, the NRSC, and broadcasters themselves establish, contrary to EFF's assertion, that DAB is superior to analog FM.[33]

3. EFF's "Empirical Evidence" Is Based on a Flawed Study

While EFF argues that its claim is based upon "empirical evidence," the CD it provided the Commission purporting to demonstrate that DAB quality was no better than analog FM was produced using questionable methodology. RIAA notes briefly here some of the more significant apparent problems with EFF's demonstration.

First, EFF's study failed to provide for field testing of DAB transmissions and analog FM. EFF chose to compare DAB and analog FM only at a fixed location with ideal reception – the transmitting center for an FM station. However, the performance of radio systems in the real world – as evidenced by NRSC's analysis[34] – depends on their tolerance to interference, multi-path and other signal impairments. Manufacturers such as Kenwood, for example, acknowledge the improved reception in the mobile IBOC receivers over that of analog FM.[35] EFF's failure to conduct testing of actual reception in a manner similar to the way a consumer would receive transmissions questions EFF's ability to make a meaningful comparison between DAB and analog FM.

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[31] *See* http://www.wamu.org/about/technical/digital/digital_broadcasting.php (last visited Jan. 5, 2004).
[32] *See* http://www.wosu.org/digital/digital_rad_full.php (last visited Jan. 4, 2005) (emphasis added).
[33] Interestingly, EFF virtually admits in footnote 7 that its test does not establish that DAB transmissions are not better than analog FM since it acknowledges that its "field recordings … are not intended to establish an absolute benchmark of relative DAB and analog FM quality…." Rather, EFF indicates that the tests are designed to show that recordings from DAB and from analog FM broadcasts "using commonly available recording tools" are comparable. Even assuming arguendo that EFF's claim is accurate, and RIAA disputes the claim, it is at best applicable to today's recording devices. As DAB becomes commonplace, recording devices that capture the full DAB audio quality will become commonly available because consumer electronics manufacturers will see this feature as a selling point.
[34] *See* footnote 25 *supra.*
[35] *See* http://www.kenwoodusa.com/product/product.jsp?productId=2539.

Second, EFF has failed to document the audio sources used in KSAN's broadcast. RIAA believes that most FM stations are broadcasting music from MPEG Layer II files encoded at 256 kbps. The degradation from Layer II coding might exceed and would certainly compound the degradation caused by HDC coding used in the iBiquity IBOC transmission system. If KSAN used Layer II coding in its broadcasts instead of playing the full-quality original CDs, then the potential for additional degradation caused by the codec employed in the IBOC transmission would seriously question the validity of the test. Thus, EFF's failure to report the audio format and sampling rate used by KSAN in the recorded broadcast makes it impossible to perform a meaningful comparison of the quality of the recordings on the demonstration CD.

Third, EFF reports that "KSAN uses nearly identical audio processing on both its FM and DAB signals."[36] However, EFF does not detail the different equipment and settings used for the FM and for the DAB signal at the time of the broadcast. Without that data, it is difficult to determine whether any differences in the recorded audio are due to the differences in the audio processing or the technical aspects of the FM and DAB transmissions being compared. Recordings of the processed audio at the point before it entered the coder/exciter/transmitter chain for both systems would reveal the impact of the different audio processing on the broadcast audio.

Fourth, EFF reports that a high-quality DAB receiver (Kenwood KDC-722) was used to capture the KSAN DAB transmissions.[37] However, Kenwood only describes the KDC-722 as "HD Ready," and therefore an additional unit is needed in order for the KDC-722 to receive DAB transmissions. If the Kenwood KTC-HR-100 was used in conjunction with the KDC-722 (a logical companion device), then a flaw would arise from limitations in the output capabilities of the KTC-HR-100. That device is only capable of outputting audio in the range of 30 Hz to 15 kHz. The ceiling of 15 kHz compares to the upper range of analog FM but is far short of the capability of Red Book audio CD, which supports a frequency range of 20 Hz to 20 kHz. The fact that the KTC-HR-100 cannot render or output frequencies that exceed the upper range of analog FM would make it – and the KDC-722 – a poor choice for comparing DAB with analog FM.

Finally, EFF's attempt to compare a DAB transmission recorded through analog outputs and transferred to a CD with an analog FM transmission recorded and transferred to a CD further undermines its claim. Both the digital-to-analog conversion performed within the HD Receiver and the conveyance of the signal to the recording device through

[36] EFF Filing at 3 (emphasis added).
[37] EFF Filing at 3 & n.9.

analog cables has the capability of degrading audio quality. This combined degradation might have reduced the audible advantages that DAB has over analog FM transmissions.

In sum, EFF's attempt to demonstrate that DAB quality is comparable to analog FM falls short of making its case and is manifestly insufficient to rebut the more scientific and rigorous determinations of the NRSC and the Commission.

4. EFF's Attempt to Compare DAB and Analog FM Transmissions Misses the Recording Industry's Concern with Unprotected DAB Transmission

EFF's test misses the point of RIAA's concerns about unprotected DAB transmissions. The recording industry is not concerned about the improved quality of DAB transmission; indeed, the recording industry applauds the Commission's and the broadcast industry's efforts to develop and deploy DAB technology. DAB transmission will manifestly serve the public interest by enhancing listeners' enjoyment of broadcast music. Moreover, if adequate content protection is included, DAB may promote the sale of recorded music, for example, by the use of buy-buttons that will benefit consumers, broadcasters and labels and artists.

The recording industry's concern is with the ease with which listeners can create libraries of recorded music by employing off-the-shelf technology to program DAB receivers to cherry pick the music they want to record using the metadata that will be included in unprotected DAB transmissions. The higher quality of DAB makes the librarying of songs from those transmissions a significant substitutional threat to sales of prerecorded music, but it is the combination of that higher quality with the ability to automate easily the digital capture of recordings onto the hard drive of a combination receiver/recorder that becomes the permanent repository for thousands of songs that poses the real threat to the music industry. If consumers can capture in these devices the quality of the DAB transmission, without performing any additional transformations of the digital audio captured in the receiving/recording device itself, then based upon the NRSC's studies, the quality of the recorded DAB is superior to the quality of recorded analog FM and poses a materially greater threat to the recording industry than analog FM.

5. Inclusion of Content Protection Requirements in the DAB Rules Will Not Impair DAB Service or Technology

EFF has argued that RIAA's efforts to obtain content protection measures for DAB would "artificially retard[] innovation in, and adoption of, DAB technologies."[38] Once again, however, EFF is attempting to permit the widespread, unauthorized reproduction of sound recordings by changing the subject.

EFF believes that if other products are already in the market that enable consumers to make unauthorized reproductions of sound recordings, then no measures should be taken to prevent the introduction of other products that would provide similar – but greater harm – to the record industry. That argument is truly strange, especially since librarying of music using the digital recording means noted by EFF either is illegal or in some cases may provide compensation to the copyright owner under the AHRA.[39] Moreover, that approach would result in the Commission abdicating its obligation to ensure that its regulations do not conflict with other laws adopted by Congress – including the copyright laws.

In addition, EFF's argument that the inclusion of content protection requirements as part of the Commission's DAB regime will unfairly burden DAB is misguided. The Commission's adoption of a "flag" requirement as part of its DAB rules will not burden DAB nor retard innovation. As the recent NAB/iBiquity announcement concerning the rapid rollout of DAB demonstrates,[40] FM broadcasters are actively deploying DAB and presumably listeners will buy receivers to get the improved audio quality. Including a content protection regime as part of the DAB rules will not deprive these listeners of the benefits of the improved audio quality or impair FM broadcasters' ability to offer higher quality music. And, since the iBiquity transmission standard already includes a content protection system, including a content protection requirement in the DAB rules will not burden the technology.

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[38] EFF Filing at 5.

[39] In some cases, in contrast to broadcast radio, copyright owners also receive compensation for the making of the transmissions that are recorded. Further, the recording of analog transmissions – with its reduced quality and pops and hisses – is unlikely to substitute for the sale of prerecorded music.

[40] *See NAB Radio Week*, Jan. 10, 2005. "Last week, 21 of the nation's top radio broadcast groups and iBiquity Digital Corporation announced an historic agreement to accelerate broadcast conversion of 2,000 AM and FM stations to digital HD Radio® technology. Combined with the current 500 stations licensed, 2,500 stations have embarked on an HD Radio future, covering all of the nation's top 100 markets and beyond."

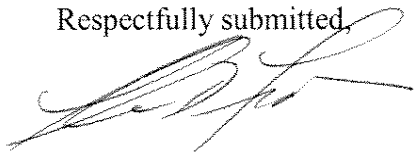
Content protection regulations will also not impair innovation. As noted above, the iBiquity standard was designed to accommodate content protection and a Commission rule requiring that one of those systems be deployed to protect the copyright rights of the recording industry will not "artificially retard innovation in" DAB technology.

* * *

As RIAA demonstrated in its Comments and Reply Comments, DAB without content protection requirements poses an immediate and substantial threat to the recording industry. EFF simply refuses to accept that fact and effectively urges the Commission to sanction the unfettered, automated creation of vast libraries of copyrighted recorded music. However, the Commission cannot so blithely ignore the effect of its regulatory action. Rather, it has an obligation to make certain that its regulatory activity does not undermine established Congressional policies reflected in other statutes. The Commission has the jurisdiction to include content protection in its DAB rules and the obligation to do so.

Finally, it is imperative that the Commission should act before DAB receiving/recording devices are widely introduced into the stream of commerce. The failure to act now will only make it more difficult for the Commission or the Congress to take steps to minimize the harm to the recording industry that DAB without content protection will cause. With the acceptance of DAB by the public and the increasing introduction of devices that couple reception and recording, delay will only increase the number of legacy devices and tie the hands of not only the Commission but Congress as well.

Respectfully submitted,



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